Refine Search

Search Results -

Terms	Documents
L11 not L13	2

Database: US Pre-Grant Publication Full-Text Database; US Patents Full-Text Database; US OCR Full-Text Database; EPO Abstracts Database; JPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L14

Refine Search | Recall Text | Clear | Interrupt

Search History

DATE: Friday, October 29, 2004 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=OR			
L14	L11 not l13	2	L14
L13	L12 and l11	1	L13
L12	701/200,202,201,207,208,209,210,213.ccls.	3501	L12
L11	L5 and ("on-map" with (position or address$ or location))	3	L11
L10	L9 and navigat$	7	L10
L9	L8 and (target$ with search$ with (region$ or zon$ or area))	11	L9
L8	L7 and (map$ with data) and (map adj search$)	43	L8
L7	L6 and (map$ with search$)	534	L7
L6	L5 and (search$ with (site or area or zone))	2823	L6
L5	(search$ same (target$ or destination)) and @ad<=20030110	13786	L5
DB=EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES; OP=OR			
L4	NAVIGAT$ and compar$ and (retriev$ with (area or zone)) and location NAVIGATION and address and compar$ and (retrieval with (area or zone))	1	L4

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L3	and location	0	L3

DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES; OP=OR

L2	(data adj retrieving adj device) and (map adj data) and (display$ with screen) and (retrieving adj area)	1	L2
L1	NAVIGATION and address and compar$ and target and destination and (retrieval adj list) and location	1	L1

END OF SEARCH HISTORY

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L13: Entry 1 of 1 File: USPT Oct 5, 1999

US-PAT-NO: 5961571
DOCUMENT-IDENTIFIER: US 5961571 A

TITLE: Method and apparatus for automatically tracking the location of vehicles

DATE-ISSUED: October 5, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gorr; Russell E.	Hightstown	NJ		
Hancock; Thomas R.	Plainsboro	NJ		
Judd; J. Stephen	Plainsboro	NJ		
Lin; Long-Ji	Kendall Park	NJ		
Novak; Carol L.	Newtown	PA		
Rickard, Jr.; Scott T.	Plainsboro	NJ		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Siemens Corporated Research, Inc	Princeton	NJ			02

APPL-NO: 08/ 364160 [PALM]
DATE FILED: December 27, 1994

PARENT-CASE:
RELATED APPLICATIONS This application is related to co-pending applications Ser. No. 08/364,879 (Attorney Docket No. 94E7541), entitled "Omnidirectional Visual Sensor and Processor", filed on Dec. 27, 1994; and Ser. No. 08/364,885 (Attorney Docket No. 94E7618), entitled "Discoidal Visual Image Detector", filed on, Dec. 27, 1994; and Ser. No. 08/364,880 (Attorney Docket No. 94E7617), entitled "Visual Incremental Turn Detector", filed on, Dec. 27, 1994. The teachings of the co-pending applications are incorporated herein by reference to the extent they not do conflict with the teachings herein.

INT-CL: [06] G06 F 165/00

US-CL-ISSUED: 701/207; 701/200, 701/208, 701/211, 701/212, 340/988, 340/990
US-CL-CURRENT: 701/207; 340/988, 340/990, 701/200, 701/208, 701/211, 701/212

FIELD-OF-SEARCH: 701/23, 701/117, 701/200, 701/201, 701/205, 701/207, 701/208, 701/209, 701/210, 701/211, 701/212, 701/216, 701/217, 701/214, 340/988, 340/990, 340/995

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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Search Selected | Search ALL | Clear

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4777601	October 1988	Boegli	701/23
☐	5177685	January 1993	Davis et al.	364/443
☐	5212643	May 1993	Yoshida	364/449
☐	5262775	November 1993	Tamai et al.	340/995
☐	5283575	February 1994	Kao et al.	340/990
☐	5291412	March 1994	Tamai et al.	364/449
☐	5291413	March 1994	Tamai et al.	364/449
☐	5291414	March 1994	Tamai et al.	364/449
☐	5303159	April 1994	Tamai et al.	364/449
☐	5311434	May 1994	Tamai	364/449
☐	5696503	December 1997	Nasburg	701/117

OTHER PUBLICATIONS

Zhang et al., "Segment-Based Matching For Visual Navigation", Computer and Information Science, University of Massachusetts at Amherst, COINS TR91-35, pp. 1-37 (Apr. 1991).
Oh et al., "A study of the characteristics of an omnidirectional vision sensor", Advances in Image Processing, SPIE vol. 804, pp. 259-268 (1987).
Zheng et al., "Panoramic Representation for Route Recognition by a Mobile Robot", International Journal of Computer Vision, 9:1, pp. 55-76 (1992).
Hong et al., "Image-Based Navigation Using 360.degree. Views", Proc. of Image Understanding Workshop, pp. 782-791 (1990).
Oh et al., "Guidance of a Mobile Robot Using an Omnidirectional Vision Navigation System", Mobile Robots II, SPIE vol. 852, pp. 288-300 (1987).
Yagi et al., "Panorama Scene Analysis with Conic Projection", IEEE International Workshop on Intelligent Robots and Systems, IROS, pp. 181-187 (1990).
Zipser, "Biologically Plausible Models of Place Recognition and Goal Location", Chapter 23, pp. 432-470.

ART-UNIT: 361

PRIMARY-EXAMINER: Cuchlinski, Jr.; William A.

ASSISTANT-EXAMINER: Arthur; Gertrude

ATTY-AGENT-FIRM: Ahmed; Adel A.

ABSTRACT:

A system for automatically tracking the location of a vehicle includes a visual image detector mounted on the vehicle for producing as the vehicle moves along a route digitized strips of image data representing successive panoramic views of scenery about the vehicle at respective locations along the route. A sparse tracking subsystem processes and stores only selected ones of the image data strips representing substantially spaced apart successive locations along the route, for

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use as a sparse database. A dense tracking subsystem processes and stores as a dense database every successive one of the image data strips representing location along the route, whereby the dense tracking subsystem provides more accurate location of the vehicle when it retraces some portion of the route than the sparse tracking subsystem. After the sparse and dense databases are established, the location of the vehicle in real time as it retraces the route is performed by the dense tracking subsystem matching current image data strips from the visual image detector with the dense database strips to determine the location of the vehicle, as long as the vehicle stays on the pre-established route. If the vehicles strays from the route, the system senses the deviation and switches to the sparse tracking system to search a broader area in less time than the dense tracking system to attempt to relocate the vehicle along the route, after which the system switches back to the dense tracking subsystem.

38 Claims, 21 Drawing figures

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L13: Entry 1 of 1 File: USPT Oct 5, 1999

DOCUMENT-IDENTIFIER: US 5961571 A
TITLE: Method and apparatus for automatically tracking the location of vehicles

Application Filing Date (1):
19941227

Detailed Description Text (165):
Once the dense tracker operation is off map 69', it ceases normal operation and maintains a tally of the accumulated odometer 54 distance since departing from the route. This is fed as input to the sparse tracker portion of the system (along with the position at which the vehicle left the map). The sparse tracker examines the visual landmarks within the radius allowed by the accumulated odometer 54 readings to search for a return to the mapped database 69'. As described before, the sparse tracker maintains a set of location hypotheses and probabilities, which are updated whenever a landmark within that radius is recognized (correctly or incorrectly). When one of the location hypotheses has a much higher probability than the others, the vehicle is declared on-map at the corresponding position, and dense tracking is resumed. The flowchart of FIG. 17 shows the system operation for different events such as "off map", near intersection", "on map", and so forth.

Detailed Description Text (193):
If one assumes a dead reckoning error of 5% and a blind journey of 10 meters, a resultant error at the end of the journey of the robot is 50 cm. If one further assumes an accumulated orientation error of 0.2.degree./meter, the resultant build up in uncertainty is 2.degree.. The present inventors recognize that the method herein suggested is operable as long as the step size of the robot (i.e. the blind journey length) is short enough to insure that the uncertainty in either of these dimensions does not exceed the space in the database that the system is capable of searching, and as long as the correlation function is unambiguous in that space. Although too small a search space is not desirable, too large a search space can also cause problems by producing spurious matches, in addition to requiring extra search time. However, engineering prototypes of robots including the present system have been shown to reliably operate in that even single real world images (i.e. observations of size 1.times.360) had sufficient uniqueness to result in the production of a single, sharp, and robust peak for each target image.

Current US Original Classification (1):
701/207

Current US Cross Reference Classification (3):
701/200

Current US Cross Reference Classification (4):
701/208

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L14: Entry 2 of 2 File: USPT Nov 20, 1990

US-PAT-NO: 4971174
DOCUMENT-IDENTIFIER: US 4971174 A
**** See image for Certificate of Correction ****

TITLE: Four-wheel steering motor vehicle

DATE-ISSUED: November 20, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Abe; Masaru	Tochigi			JP
Kohata; Takashi	Tochigi			JP
Yahagi; Toshio	Tochigi			JP
Iwagawa; Yoshihiro	Tochigi			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Honda Giken Kogyo Kabushiki Kaisha	Tokyo			JP	03

APPL-NO: 07/ 325214 [PALM]
DATE FILED: March 17, 1989

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	63-64508	March 17, 1988

INT-CL: [05] B62D 6/00

US-CL-ISSUED: 180/140; 303/92
US-CL-CURRENT: 180/408

FIELD-OF-SEARCH: 180/140, 280/91, 303/92, 303/96, 303/100, 303/111

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL Clear

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4687214	August 1987	Uno	280/91
☐	4733878	March 1988	Kanazawa et al.	280/91

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☐	4740002	April 1988	Miyoshi	280/91
☐	4765429	August 1988	Sato	303/111
☐	4784444	November 1988	McCann et al.	303/111
☐	4840243	June 1989	Hirabayashi et al.	303/92

ART-UNIT: 316

PRIMARY-EXAMINER: Marmor; Charles A.

ASSISTANT-EXAMINER: Boehler; Anne M.

ATTY-AGENT-FIRM: Weiner; Irving M. Carrier; Joseph P. Burt; Pamela S.

ABSTRACT:

A four-wheel steering motor vehicle adapted to prevent a steering ratio of the rear wheels to the front wheels from varying at the time of sudden braking when the pressure of a brake liquid is reduced by an antilock brake unit. This vehicle includes a front wheel steering unit for steering the front wheels in accordance with angular movement of a steering wheel, a rear wheel steering unit for steering the rear wheels, steering control unit for determining a target steering angle of the respective rear wheels based on a vehicle speed and a front wheel steering angle and for controlling the rear wheel steering unit in such a manner that the rear wheel steering unit steers the rear wheel until a rear wheel steering angle reaches the target value, an antilock brake unit for calculating a slip coefficient of each wheel based on a sensed rotating speed of each wheel and for reducing the pressure of a brake liquid being supplied to a brake of the individual wheel when the slip coefficient of the wheel exceeds a predetermined value. The steering control unit controls the rear wheel steering unit so as to substantially prevent the rear wheel steering angle from varying when the pressure to the brake liquid is reduced by the antilock brake unit.

5 Claims, 7 Drawing figures

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L14: Entry 2 of 2 File: USPT Nov 20, 1990

DOCUMENT-IDENTIFIER: US 4971174 A

**** See image for Certificate of Correction ****

TITLE: Four-wheel steering motor vehicle

Application Filing Date (1):
19890317

Detailed Description Text (16):
In the foregoing embodiment, the change of the rear wheel steering angle is substantially prevented by regulating the change of the vehicle speed value which is used as the address data in the on-map searching to determine the steering angle ratio. Alternatively, as shown in FIG. 6, the steering control unit 15 may include a memory gate circuit 35 for memorizing the target steering angle of the rear wheels outputted from the rear wheel steering angle processing circiut 31 and for outputting the memorized target steering angle to the driver circuit 32 while the actuation signal is being outputted from the antilock brake control unit 27.

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Search Results - Record(s) 1 through 7 of 7 returned.

Y ☐ 1. Document ID: US 6567746 B2

L10: Entry 1 of 7 File: USPT May 20, 2003

US-PAT-NO: 6567746
DOCUMENT-IDENTIFIER: US 6567746 B2

TITLE: Map information providing apparatus and method

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

☐ 2. Document ID: US 6128571 A

L10: Entry 2 of 7 File: USPT Oct 3, 2000

US-PAT-NO: 6128571
DOCUMENT-IDENTIFIER: US 6128571 A

TITLE: Vehicle navigation system

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

☐ 3. Document ID: US 6041281 A

L10: Entry 3 of 7 File: USPT Mar 21, 2000

US-PAT-NO: 6041281
DOCUMENT-IDENTIFIER: US 6041281 A
** See image for Certificate of Correction **

TITLE: Information guidance system based on structure configuration map

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

☐ 4. Document ID: US 5890088 A

L10: Entry 4 of 7 File: USPT Mar 30, 1999

US-PAT-NO: 5890088
DOCUMENT-IDENTIFIER: US 5890088 A

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TITLE: Information guidance system based on structure configuration map

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 5. Document ID: US 5845228 A

L10: Entry 5 of 7 File: USPT Dec 1, 1998

US-PAT-NO: 5845228
DOCUMENT-IDENTIFIER: US 5845228 A

TITLE: Vehicle-route computing apparatus

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 6. Document ID: US 5557522 A

L10: Entry 6 of 7 File: USPT Sep 17, 1996

US-PAT-NO: 5557522
DOCUMENT-IDENTIFIER: US 5557522 A

TITLE: Apparatus and method for guiding vehicle occupant to travel from present position of vehicle to set destination through display unit

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 7. Document ID: US 5475387 A

L10: Entry 7 of 7 File: USPT Dec 12, 1995

US-PAT-NO: 5475387
DOCUMENT-IDENTIFIER: US 5475387 A

TITLE: Travelling course searching apparatus for vehicle

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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L10: Entry 1 of 7 File: USPT May 20, 2003

DOCUMENT-IDENTIFIER: US 6567746 B2
TITLE: Map information providing apparatus and method

Abstract Text (1):
A map information providing apparatus includes a detecting unit 13 and a searching part 21. In operation, the part 21 searches a target object in accordance with a position of a user's vehicle detected by the detecting unit 13. A positional relationship analyzing part 22 analyzes a positional relationship between the target object and the user's vehicle. A reduced scale calculating part 23 calculates a reduced scale of the map information on the basis of the positional relationship analyzed by the part 22 and a display format of an onboard monitor 3. Further, the apparatus picks up the map information with the calculated reduced scale allowing the vehicle and the target object to be displayed on the monitor 3 simultaneously.

Application Filing Date (1):
20020305

Brief Summary Text (5):
As means for providing a user with a positional information about a user's destination, Japanese Patent Application Laid-open No. 11-230761 discloses a navigation system that can display a detailed positional information centering a destination established by the user. In the operation, when a destination is clearly designated by the user, this navigation system performs a so called "download" operation to take in a map information of a narrow (or restricted) area arranging the designated destination as a map center. To the contrary, if the position of a user's destination is vague, for example, a situation that a user's destination is designated in the form of "one destination or thereabouts", then the systems loads a map information of a wide area including the destination.

Brief Summary Text (7):
The above mentioned navigation system disclosed in Japanese Patent Application Laid-open No. 11-230761 can cope with the former case, but the system cannot cope with the latter case. Because an indispensable information for the user in the latter case is not a map in the neighborhood of the user's final destination but a map information illustrating the positional relationship between the user's vehicle and the target object for the moment. To the contrary, since the above navigation system is constructed so as to provide the user with a map information about the user's vehicle or the final destination, it is impossible to cope with such a user's requirement.

Brief Summary Text (8):
In detail with the operation of the above navigation system, there is a possibility that the so loaded map information contains only the position of the user's vehicle but the position of the target object, in other words, both of the positions are not displayed in one picture on a display unit simultaneously. In such a case, the user cannot grasp the positional relationship between the user's vehicle and the target object for the moment (e.g. interchange for freeway) clearly although the user grasps an absolute position of the user's vehicle on map. Then, the user has to again order the system to perform the download operation for taking in a map

information with a larger scale.

Brief Summary Text (13):
According to the invention, the above mentioned object is accomplished by a map information providing apparatus comprising: a detecting unit configured to detect a position of a user's vehicle; a memory unit configured to store information including a map information therein; a control unit connected to the detecting unit and communicated with the memory unit thereby to select the map information in the circumferences of the position of the user's vehicle detected by the detecting unit; and an onboard display unit connected to the control unit and configured to display the map information selected by the control unit; wherein the map information includes information about target objects forming landmarks on a route for a user's destination; and the control unit comprises: a searching part configured to search a target object for the moment with reference to the information stored in the memory unit, on the basis of the position of the user's vehicle and information about the user's destination inputted by a user; a positional relationship analyzing part connected to the searching part and configured to analyze a positional relationship between the target object searched by the searching part and the user's vehicle; a reduced scale calculating part connected to the positional relationship analyzing part and configured to calculate a reduced scale of the map information to be displayed on the onboard display unit, on the basis of the positional relationship analyzed by the positional relationship analyzing part and a display format of the onboard display unit; and a map information acquiring part connected with both of the reduced scale calculating part and the onboard display unit and configured to acquire the map information with the reduced scale calculated by the reduced scale calculating part, from the memory unit and further transmit the map information to the onboard display unit.

Brief Summary Text (14):
From another aspect of the present invention, there is provided a map information providing method for selecting a map information on the circumstances of a position of a user's vehicle in response to a map information demanding order received from a terminal on the user's vehicle, thereby to display the selected map information on an onboard display unit, the method comprising: storing a map information including target objects forming landmarks on a route for a destination in advance; searching a target object for the moment out of the target objects with reference to the map information on the basis of the position of the user's vehicle and information about the destination inputted by a user; analyzing a positional relationship between the searched target object and the user's vehicle; calculating a reduced scale of the map information to be displayed on the onboard display unit, on the basis of the analyzed positional relationship and a display format of the onboard display unit; and selecting the map information in accordance with the calculated reduced scale and further transmitting the readout map information to the user's vehicle.

Drawing Description Text (7):
FIG. 6 is a view showing one example of an area for searching the position of a target object;

Detailed Description Text (9):
FIG. 2 shows the structure of the map information providing apparatus 1 on the side of the user's vehicle. On the side of the vehicle, the user's vehicle position detecting unit 13 is formed by a GPS (Global Positioning System) antenna 13a and a GPS unit 13b for processing signals received through the GPS antenna 13a. Although not shown in FIG. 1, this "onboard" map information providing apparatus 1 further includes a terminal 14 for portable telephone that allows the apparatus 1 to give access to the internet system 5 via the portable telephone base station 4 (FIG. 1). The display unit 3 is formed by a LCD (Liquid Crystal Display) unit. The control unit 2 controls various operations of the map information providing apparatus 1, for example, communication with the map server 60, search for map information,

calculation of reduced scales and so on. The map information providing apparatus 1 further includes a map information demand button (switch) 11 for transmitting a map information demand signal, namely, the "download" demand from the vehicle to the map server 60.

Detailed Description Text (12):
On receipt of the information, the control unit 2 (or the built in controller of the map server 60) performs the following operations of: searching a target object in the circumferences of the user's vehicle; analyzing the positional relationship between the target object and the user's vehicle; and calculating a minimum reduced scale allowing the target object and the user's vehicle to be displayed on the identical display unit (LCD) 3. Note, at this time, layouts about both margins and direction of map information may be edited in view of the driver's easiness to watch them. Further, the control unit 2 gains an appropriate map information (i.e. map information containing the positions of the user's vehicle and the target object) from the map information with the so calculated reduced scale and further displays the so gained map information on the display unit 3 on board.

Detailed Description Text (14):
FIG. 3 is a block diagram showing the constitution of the map information providing apparatus 1 shown in FIGS. 1 and 2, functionally. In view of functional classification, the map information providing apparatus 1 comprises the detecting unit 13 for detecting the position of the user's vehicle, the control unit 2 for selecting the map information corresponding to the so detected position of the user's vehicle, the display unit (onboard monitor) 3 for displaying the map information and the memory unit 6 for storing the map information. In this figure, the control unit 2 and the memory unit 6 forming the map information providing apparatus 1 are shown as if they were arranged on the side of the user's vehicle. Nevertheless, a part (including the map searching function) of the controller's part 2 may be shifted to the side of the map server 60, as similar to the memory unit 6.

Detailed Description Text (16):
Repeatedly, the detecting unit 13 detects the present position of the user's vehicle. The user's vehicle position detecting unit 13 of FIG. 1 and the GPS unit 13b of FIG. 2 correspond to the detecting part 13. As this detecting unit 13, there may be employed a car navigation system (not shown) that is generally used to detect the present position of a moving object (e.g. user's vehicle) in the form of absolute positional information of the moving object, providing that a radio wave generated from a position detecting satellite (not shown) is received by the GPS antenna 13a. In the modification, the detecting unit 13 may be formed by a system for measuring the position of the user's vehicle by means of an autonomic navigation where the present position of the user's vehicle is estimated by a cumulative calculating method, on the basis of the positional data inputted by a gyro sensor or a traveling distance sensor attached to a vehicle wheel.

Detailed Description Text (18):
The control unit 2 includes a searching part 21, a positional relationship analyzing part 22, a scale calculating part 23 and a map information acquiring part 24. In the shown embodiment, the control unit 2 is arranged on the side of the user's vehicle. Insistently, as shown with broken line of FIG. 1, the control unit 2 may be partially arranged in the map server 60 to which the user can give access through the internet system 5.

Detailed Description Text (20):
The searching part 21 is provided to search a target object in the circumferences of the user's vehicle, corresponding to the present position of the user's vehicle detected by the detecting unit 13. It should be noted that the target object is not a final destination but one of landmarks in the course to the final destination. As the target objects, there are nominated interchanges in freeways, intersections,

city offices, institutions such as police boxes (kobans), structures such as bridges, etc. It is preferable that a landmark suitable for the driver is searched as the target object. For this, the map informations comprises a target object positional information 613 about respective positions of the target objects, a regional property information 611 about a relationship between the targets' positions and their regional property information (e.g. urban or rural), a road sorts property information 612 about a relationship between the targets' positions and their road property (e.g. main road, freeway or narrow street), etc.

Detailed Description Text (21):
Corresponding to these informations, the searching part 21 includes a search area establishing function 211, a route distance comparing function 212, a necessary time comparing function 213 and a search direction specifying function 214.

Detailed Description Text (22):
The search area establishing function 211 is a function of the searching part to determine a searching area corresponding to the regional property of the present position of the user's vehicle. For example, when the vehicle is in the rural area, the target object is searched in a wide searching area. While, in the urban area, the target object is searched in a narrow searching area. Thus an appropriate target object in accordance with the regional property is searched.

Detailed Description Text (23):
The route distance comparing function 212 is a function (of the searching part) to select the "substantially nearest" target object to the user's vehicle, from nominated target objects. That is, in accordance with the function 212, it is not executed to calculate respective liner distances between the user's vehicle and the nominates target objects, but executed to calculate respective route distances between the nominated target objects and the user's vehicle in case that the vehicle will travel to the target objects practically. Then, the so calculated route distances are compared with each other to determine the substantially nearest target object to the user's vehicle at present. Thus owing to this route distance comparing function 212, a driver can set the driver's sights on the "substantially nearest" target object.

Detailed Description Text (24):
The necessary time comparing function 213 is a function to search the target object in consideration of the traffic congestion. Owing to the provision of the necessary time comparing function 213, a driver can set the driver's sights on the target object that can provide the shortest necessary time for the user's vehicle to reach the target object while reducing an influence of the traffic congestion as possible. The information about traffic congestion can be obtained by traffic information providing means, such as VICS (Vehicle Information and Communication System) based on FM multiple signals and beacon signals.

Detailed Description Text (25):
The search direction specifying function 214 is a function to search the target object in consideration of the traveling direction of the vehicle. Owing to the provision of the search direction specifying function 214, a driver can set the driver's sights on the target object along the traveling direction of the driver's vehicle, allowing it to be directed toward the target object without changing the vehicle's course.

Detailed Description Text (27):
The positional relationship analyzing part 22 analyzes a positional relationship between one or more target objects detected by the searching part 21 and the user's vehicle. The analysis of the positional relationship means calculating a positional relationship (distance, direction) between the user's vehicle and the target thereby to convert the so calculated relationship into a numerical value. According to this embodiment, a distance between the user's vehicle and the target object is

calculated by their latitude and longitude, obtaining the positional relationship of the coordinates between the user's vehicle and the target object. The details will be described in the paragraph of "operation".

Detailed Description Text (35):
This map information includes a latitude/longitude information on the map and an absolute position information employed in the navigation system receiving a radio wave transmitted from a position detecting satellite through the GPS antenna.

Detailed Description Text (40):
At step S112, on the basis of the positional information of the user's vehicle, the map server 60 searches the positional information about target objects in the neighborhood of the user's vehicle. As the target objects, repeatedly, there are interchanges in freeways, intersections with main roads, stations, institutions (e.g. city offices, kobans) and the other objects that the driver can recognize their positions.

Detailed Description Text (41):
Employed as a map data used in this embodiment are maps which are produced on the ground of numerical maps published by the Geographical Survey Institute in Japan. Using a primary mesh divided with angles of 0.degree. in latitude direction and 1.degree. in longitude direction and a secondary mesh obtained by dividing the primary mesh into eight equal parts in both latitude and longitude directions, the numerical maps published by the Geographical Survey Institute are registered at every mesh divided with angles of 0.degree. 05' (in latitude direction: corres. length of about 9,200 m) and 0.degree. 07' 30" (in longitude direction: corres. length of about 18,000 m).

Detailed Description Text (42):
As illustrated in FIG. 5, the map data about roads is formed by nodes each recording the positional information of intersection, complement points each recording the coordinates on the road besides the intersections in order to express the profile of curves, and links each of which connects the nodes (or the complement points) to each other or connecting the node to the complement point and vice versa. The nodes, the complement points and the links are recorded with respective property data as to the sorts of roads. For example, the roads are classified into the road sorts about classification (freeway, main road, narrow street, introductory road for freeway, etc.). These constituents of the above classification are registered to all of nodes, complement points and links, as the property data. Note, as to stations, gas stations, restaurants and the other institutions, the property data of its position and sorts of institutions are registered respectively.

Detailed Description Text (43):
Referring to FIG. 6, we now describe the searching area for the target object. According to this embodiment, if the user's vehicle is present at a user's vehicle position Pc shown in the figure, then one mesh portion including the position Pc and eight mesh portions surrounding the above mesh portion are established as the searching area. For example, in case of an interchange for freeway as the target object, it is carried out to search a road, of which road property is nominated as "introductory road for freeway", within this searching area. Then, the searching result (i.e. introductory road) is temporarily stored in the memory unit 6, as "positional candidates" for target object.

Detailed Description Text (51):
At step S115, by the map information pickup (cutout) function 232 of the reduced scale calculating part 23, it is executed to establish a cutout area of the map information that involves the whole route from the present position Pc of the user's vehicle to the target object T at the reduced scale S calculated at step S114 and also equalizes the upper/lower and left/right margins .DELTA.ey, .DELTA.ex

with each other, as shown in FIG. 8B. Additionally, the map information acquiring part 24 operates so that the positional data of nodes, complement points, links and institutions (e.g. station, gas station, general store) is loaded (downloaded) into the map information providing apparatus 1 through the onboard communication terminal (not shown) or the portable telephone terminal 14.

Detailed Description Text (58):
FIG. 9 is a flow chart for explanation of the operation to be executed when no target object has been specified within the searching area of FIG. 6 at step S112. At step S211, it is judged whether the user's vehicle is traveling on a main road or not. If the target object (i.e. destination for the moment) is set to an interchange for freeway and a link closest to the present position of the user's vehicle is judged as "national road", it is judged that the user's vehicle is traveling on the main road and then the routine goes to step S213 to enlarge the searching area. While, if the user's vehicle is traveling on any road besides the main road (No at step S211), the routine goes to step S212 to change the target object to an intersection of the road with a main road. In the modification, the judgement at step S211 whether or not the user's vehicle is traveling on the main road may be carried out on the ground of the number of traffic lanes. For example, if it is judged that the vehicle is traveling on a four or more lane road, it may be regarded that the vehicle is now traveling on the main road although the link closest to the present position of the user's vehicle is not a national road.

Detailed Description Text (59):
After executing a process at step S212 to alter the target object, the routine goes to step S214 to search the target object in the searching area shown in FIG. 6, again.

Detailed Description Text (60):
At step S213, the searching area for the target object is enlarged to mesh portions outside the searching area shown in FIG. 6 and the routine goes to step S214 to search an interchange for freeway in the so enlarged searching area again.

Detailed Description Text (61):
Next, we describe the second embodiment of the present invention. In the second embodiment, the constitution of the map information providing apparatus is similar to that of the first embodiment. As to the operation, the map information providing apparatus of the embodiment is provided with additional functions as follows. In acquiring the map information corresponding to the present position of the user's vehicle, the search area establishing function 211 of the searching part 21 serves to select the target object in accordance with the sorts of roads. One example is shown in Table 1.

Detailed Description Text (62):
FIG. 10A shows a case that there are detected two target objects that congesting conditions in routes from the present position to the target objects are different from each other in spite of their similar route distances. In this case, the necessary time comparing function 213 of the searching part 21 serves to select a target object that the route from the present position of the user's vehicle to the target object has no or less traffic congestion. Consequently, the user can select a target object that requires less period for the vehicle to reach a target object for the moment (e.g. freeway), allowing the vehicle to reach the user's final destination early. According to the embodiment, in consideration of the reasons, degrees, etc. of traffic congestion, it is executed to convert the respective traffic congestion into respective times required for the user's vehicle to reach the target objects. Then, it is executed to compare the converted necessary times with each other, thereby selecting the only one target object. Note, the information about traffic congestion may be obtained through a traffic information providing system, such as VICS.

Detailed Description Text (71):
FIG. 10B shows a case that there are detected two target objects that are different from each other in terms of the relationship between the traveling direction of the user's vehicle and the target objects while the target objects are similar to each other in terms of the route distance. In this case, the searching direction specifying function 214 of the searching part 21 serves to select a target object that is positioned in a direction along the vehicle's traveling direction. Consequently, the driver (user) can reach the target object without changing the traveling direction, allowing the vehicle to reach the user's destination smoothly. In the modification, the necessary time comparing function 213 may be activated while taking precedence over the searching direction specifying function 214. That is, it may be adopted that if there is a traffic congestion in the course for one target object, the other target object having no traffic congestion is selected. Further, when there is no traffic congestion on respective routes for the target objects, the target object along he vehicle's traveling direction may be selected.

CLAIMS:

1. A map information providing apparatus comprising: a detecting unit configured to detect a position of a user's vehicle; a memory unit configured to store information including a map information therein; a control unit connected to the detecting unit and communicated with the memory unit thereby to select the map information in the circumferences of the position of the user's vehicle detected by the detecting unit; and an onboard display unit connected to the control unit and configured to display the map information selected by the control unit; wherein the map information includes information about target objects forming landmarks on a route for a user's destination; and the control unit comprises: a searching part configured to search a target object for the moment with reference to the information stored in the memory unit, on the basis of the position of the user's vehicle and information about the user's destination inputted by a user; a positional relationship analyzing part connected to the searching part and configured to analyze a positional relationship between the target object searched by the searching part and the user's vehicle; a reduced scale calculating part connected to the positional relationship analyzing part and configured to calculate a reduced scale of the map information to be displayed on the onboard display unit, on the basis of the positional relationship analyzed by the positional relationship analyzing part and a display format of the onboard display unit; and a map information acquiring part connected with both of the reduced scale calculating part and the onboard display unit and configured to acquire the map information with the reduced scale calculated by the reduced scale calculating part, from the memory unit and further transmit the map information to the onboard display unit.

5. The map information providing apparatus of claim 1, wherein the map information stored in the memory unit contains a regional property information designating a regional property as to which of urban part and rural part an objective area to be searched does belong to; and the searching part selects the target object for the moment corresponding to the regional property of a region where the user's vehicle is present.

6. The map information providing apparatus of claim 1, wherein the map information stored in the memory unit contains a road property information such as a freeway, main road and narrow street with respect to an objective route to be searched; and the searching part selects the target object for the moment corresponding to a road property of a load where the user's vehicle travels.

7. The map information providing apparatus of claim 1, wherein the map information stored in the memory unit contains a traffic congestion information designating a congestion situation of an objective route to be searched; and the searching part selects the target object corresponding to the congestion situation of a route where the user's vehicle travels.

8. The map information providing apparatus of claim 1, wherein the detecting unit has a function to detect a traveling direction of the user's vehicle; and the searching part has a function to specify a direction of a searching area for searching the map information in accordance with the traveling direction of the user's vehicle.

10. A map information providing apparatus comprising: detecting means for detecting a position of a user's vehicle; memorizing means for storing information including a map information therein; control means for selecting the map information in the circumferences of the position of the user's vehicle detected by the detecting means; and onboard display means for displaying the map information selected by the control means; wherein the map information includes information about target objects forming landmarks on a route for a user's destination; and the control means comprises: a searching part configured to search a target object for the moment with reference to the information stored in the memorizing means, on the basis of the position of the user's vehicle and information about the user's destination inputted by a user; a positional relationship analyzing part connected to the searching part and configured to analyze a positional relationship between the target object searched by the searching part and the user's vehicle; a reduced scale calculating part connected to the positional relationship analyzing part and configured to calculate a reduced scale of the map information to be displayed on the onboard display means, on the basis of the positional relationship analyzed by the positional relationship analyzing part and a display format of the onboard display means; and a map information acquiring part connected with both of the reduced scale calculating part and the onboard display means and configured to acquire the map information with the reduced scale calculated by the reduced scale calculating part, from the memorizing means and further transmit the map information to the onboard display means.

11. A map information providing method for selecting a map information on the circumstances of a position of a user's vehicle in response to a map information demanding order received from a terminal on the user's vehicle, thereby to display the selected map information on an onboard display unit, the method comprising: storing a map information including target objects forming landmarks on a route for a destination in advance; searching a target object for the moment out of the target objects with reference to the map information on the basis of the position of the user's vehicle and information about the destination inputted by a user; analyzing a positional relationship between the searched target object and the user's vehicle; calculating a reduced scale of the map information to be displayed on the onboard display unit, on the basis of the analyzed positional relationship and a display format of the onboard display unit; and selecting the map information in accordance with the calculated reduced scale and further transmitting the readout map information to the user's vehicle.

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L14: Entry 1 of 2 File: USPT Jul 29, 2003

US-PAT-NO: 6601060
DOCUMENT-IDENTIFIER: US 6601060 B1

TITLE: Information service system capable of providing desired information depending on user-memorable information

DATE-ISSUED: July 29, 2003

INVENTOR-INFORMATION:

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FIELD-OF-SEARCH: 340/995, 364/444, 179/15.5, 395/200.47, 370/352, 707/3, 707/4

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL Clear

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4311876	January 1982	Endo et al.	340/905
☐	4931993	June 1990	Urushima	365/189.01
☐	4954958	September 1990	Savage et al.	379/201.06
☐	5543789	August 1996	Behr et al.	340/990

☐	5740369	April 1998	Yokozawa et al.	235/382
☐	2001/0015972	August 2001	Horiguchi et al.	370/352

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
5189690	July 1993	JP	
6120877	April 1994	JP	

ART-UNIT: 2171

PRIMARY-EXAMINER: Metjahic; Safet

ASSISTANT-EXAMINER: Nguyen; Cam Linh

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ABSTRACT:

An information service system allowing a user to use user-memorable information to obtain desired information includes: a portable device referring to an input logical concept indicating a destination, such as a dining hall for breakfast, a public bath, to search for a physical concept, such as "AZALEA (corresponding to the name of a dining hall for breakfast)," a corner on the third floor, and transmit a retrieved physical concept to a stationary device installed, e.g., at an intersection of passageways in a hotel, and receiving from the stationary device a direction to be taken by the user and displaying such direction; and the stationary device searching for a direction to a physical concept and transmitting to the portable device a retrieved direction to the physical concept. The information service system also includes an association control system to rewrite an association between a logical concept and a physical concept that is stored in the portable device.

55 Claims, 68 Drawing figures

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L14: Entry 1 of 2 File: USPT Jul 29, 2003

DOCUMENT-IDENTIFIER: US 6601060 B1
TITLE: Information service system capable of providing desired information depending on user-memorable information

Abstract Text (1):
An information service system allowing a user to use user-memorable information to obtain desired information includes: a portable device referring to an input logical concept indicating a destination, such as a dining hall for breakfast, a public bath, to search for a physical concept, such as "AZALEA (corresponding to the name of a dining hall for breakfast)," a corner on the third floor, and transmit a retrieved physical concept to a stationary device installed, e.g., at an intersection of passageways in a hotel, and receiving from the stationary device a direction to be taken by the user and displaying such direction; and the stationary device searching for a direction to a physical concept and transmitting to the portable device a retrieved direction to the physical concept. The information service system also includes an association control system to rewrite an association between a logical concept and a physical concept that is stored in the portable device.

Application Filing Date (1):
20000310

Brief Summary Text (8):
Direction guide device 20 includes a start-point memory 21 storing a start point input by a user, a destination memory 22 storing a destination input by the user, a receive block 23 receiving positional information transmitted from transmitter 10, and a map memory 24 previously storing a route (i.e., a direction to the destination and the location at which transmitter 10 is installed) in a form of on-map information.

Brief Summary Text (9):
Direction guide device 20 also includes an on-map information search block 25 connected to start-point memory 21, destination memory 22 and map memory 24 to refer to a start point stored in start-point memory 21 and a destination stored in destination memory 22 to search map memory 24 for on-map information on a route and direction to the destination, and a route memory 26 connected to on-map information search block 25 to store on-map information (a route) retrieved by on-map information search block 25.

Brief Summary Text (11):
A user receives direction guide device 20 at a reception or the like and inputs thereinto a start point and a destination. Based on the start point and the destination, on-map information search block 25 calculates a route to the destination which is in turn stored in route memory 26. When the user approaches a transmitter installed for example at an intersection of passageways, receive block 23 receives positional information. Direction guide block 27 refers to the route to the destination stored in route memory 26 and the positional information received by receive block 23 to determine and indicate to the user a direction to be taken by the user. Thus the user can efficiently reach the destination.

Detailed Description Text (4):
Referring to FIG. 1, the information service system according to the first embodiment includes a portable device 102 which receives a logical concept indicating a destination, such as a dining hall floor breakfast, a public bath and the like, and uses the logical concept to search for a physical concept, such as "AZALEA (the name of a dining hall for breakfast)," a corner on the third floor and the like, transmits a retrieved physical concept to a stationary device 101 (described later) installed, e.g., at an intersection of passageways in a hotel, and receives from stationary device 101 a direction to be taken and displays such direction.

Detailed Description Text (13):
Stationary device 101 also includes a direction search block 312 connected to PC receive block 311 and PC-direction correspondence memory 313 to search PC-direction correspondence memory 313 for a direction to a destination represented by a physical concept received by PC receive block 311 and output a retrieved direction together with the physical concept, and a direction transmit block 314 connected to direction search block 312 to externally transmit an output from direction search block 312.

Detailed Description Text (20):
Referring to FIG. 10, stationary device 101 operates as described below: stationary device 101 waits for data input from portable device 102 (S601). When via portable device 102 data is input or PC receive block 311 receives a physical concept (YES at S601), then direction search block 312 searches PC-direction correspondence memory 313 for and outputs a direction to a destination represented by the received physical concept (S602). Direction transmit block 314 transmits to portable device 102 the direction output from PC-direction correspondence memory 313.

Detailed Description Text (21):
Referring to FIG. 11, portable device 102 may also display supplementary information on an input logical concept simultaneously. For example, if a user inputs "a dining hall for breakfast" then it may display a breakfast menu, or a distance to the input destination. In such example, PC-direction correspondence memory 313 stores supplementary information on a physical concept that is supplementary to an association between the physical concept and a direction. Direction search block 312 refers to the physical concept and thus searches for a direction and the supplementary information on the physical concept and outputs them together with the physical concept. Direction transmit block 314 transmits an output from direction search block 312. Direction receive block 305 receives the output and direction display block 306 displays the direction, the supplementary information on the physical concept, and the physical concept.

Detailed Description Text (28):
Referring to FIG. 12, an information service system according to a second embodiment includes a portable device 202 responding to a logical concept indicative of a destination input, such as a dining hall for breakfast, a public bath and the like, by searching for a physical concept, such as "AZALEA," a corner on the third floor and the like, and transmitting a retrieved physical concept and an identification (ID) number of portable device 202 to a stationary device 201 (described hereinafter) installed, e.g., at an intersection of passageways in a hotel.

Detailed Description Text (30):
Referring to FIG. 13, portable device 202 includes an LC input block 401 receiving a logical concept indicative of a destination input by a user, an LC-PC correspondence memory 403 storing an association between a logical concept and a physical concept, and a PC search block 402 connected to LC input block 401 and LC-PC correspondence memory 403 to receive a logical concept input by the user and search LC-PC correspondence memory 403 for and output a physical concept

corresponding to the logical concept input by the user.

Detailed Description Text (34):
Stationary device 201 also includes a direction search block 412 connected to PC receive block 411 and PC-direction correspondence memory 413 to search PC-direction correspondence memory 413 for a direction to a destination represented by a physical concept received by PC receive block 411 and output a retrieved direction together with the physical concept and an ID number, and a direction display block 414 connected to direction search block 412 to display a physical concept, an ID number and a direction to a destination.

Detailed Description Text (38):
Referring to FIG. 16, stationary device 201 operates as described below: stationary device 201 waits for data input from portable device 202 (S611). When via portable device 202 data is input or PC receive block 411 receives a physical concept (YES at S611), then direction search block 412 searches PC-direction correspondence memory 413 for a direction to a destination represented by the physical concept and outputs a retrieved direction together with the physical concept. Direction display block 414 displays the direction to the destination and the physical concept (S613).

Detailed Description Text (39):
It should be noted that stationary device 201 may also simultaneously display supplementary information on a physical concept input via portable device 202, as shown in FIG. 17. For example, stationary device 201 may display the distance to an input destination or stationary device 201 may display a breakfast menu when a user inputs a dining hall for breakfast. In this example, PC-direction correspondence memory 413 stores supplementary information on a physical concept that is supplementary to an association between the physical concept and a direction. Direction search block 412 refers to a physical concept and thus searches for a direction and supplementary information on the physical concept and outputs them together with the physical concept. Direction display block 414 receives from direction search block 412 the physical concept, the direction and the supplementary information on the physical concept and displays them together with an ID number.

Detailed Description Text (51):
Stationary device 1101 also includes a PC-direction correspondence memory 1315 storing an association between a physical concept and a direction to a destination represented by the physical concept, a direction search block 1314 connected to PC search block 1312 and PC-direction correspondence memory 1315 to search PC-direction correspondence memory 1315 for a direction to a destination represented by a physical concept output from PC search block 1312 and output a retrieved direction to the destination together with the physical concept, and a direction transmit block 1316 connected to direction search block 1314 to externally transmit a physical concept and a direction.

Detailed Description Text (59):
Direction search block 1314 receives the physical concept from LC-PC correspondence memory 1313, searches LC-PC correspondence memory 1313 for a direction to a destination represented by the physical concept and outputs a retrieved direction together with the physical concept (S1603). Direction transmit block 1316 receives from direction search block 1314 the direction and the physical concept and transmits them to portable device 1102 (S1604). Then the controls goes back to S1601.

Detailed Description Text (71):
Stationary device 1201 also includes a PC-direction correspondence memory 1415 storing an association between a physical concept and a direction to a destination represented by the physical concept, a direction search block 1414 connected to PC

search block 1412 and PC-direction correspondence memory 1415 to receive an output from PC search block 1412, search PC-direction correspondence memory 1415 for a direction to the destination represented by the physical concept, and output a retrieved direction together with the logical concept, the physical concept and the ID number, and a direction display block 1416 connected to direction search block 1414 to receive and display an output from direction search block 1414.

Detailed Description Text (76):
Referring to FIG. 29, stationary device 1202 operates as described below: stationary device 1201 waits for data input from portable device 1202 or the central control system (S1611). If via portable device 1202 data is input or LC receive block 1411 receives a logical concept and an ID number (an input from the portable device at S1611), then PC search block 1412 searches LC-PC correspondence memory 1413 a physical concept corresponding to the logical concept and the ID number and outputs a retrieved physical concept together with the logical concept and the ID number (S1612). Direction search block 1414 receives from LC-PC correspondence memory 1413 the physical concept and the logical concept, searches LC-PC correspondence memory 1413 a direction to the destination represented by the physical concept, and outputs a retrieved direction together with the physical concept, the logical concept and the ID number (S1613). Direction display block 1416 receives from direction search block 1414 the logical concept, the physical concept, the direction and the ID number and displays them (S1614). Then the controls goes back to S1611.

Detailed Description Text (84):
Referring to FIG. 30, an information service system according to a fifth embodiment includes a portable device 2102 using an input logical concept indicating a destination and departure time of an airplane, such as "To Honolulu, departing at 10:23," to search for an intermediate concept indicating the airplane to board, such as "JAM, Flight no. 323," transmitting a retrieved intermediate concept to a stationary device 2101 (described later) installed, e.g., at an intersection of passageways in an airport terminal, receiving from stationary device 2101 a physical concept indicating a destination, such as "Gate no. 15," and a direction to be taken by the user and displaying the physical concept and the direction.

Detailed Description Text (87):
Referring to FIG. 31, portable device 2101 includes an LC input block 2301 receiving a logical concept input by a user indicating a destination and departure time of an airplane, a logical concept-intermediate concept (LC-IC) correspondence memory 2303 storing an association between a logical concept and an intermediate concept, an IC search block 2302 connected to LC input block 2301 and LC-IC correspondence memory 2303 to receive a logical concept input by a user and search LC-IC correspondence memory 2303 for an intermediate concept corresponding to the logical concept input by the user and output a retrieved intermediate concept, and an IC transmit block 2304 connected to IC search block 2302 to externally transmit an output from IC search block 2302.

Detailed Description Text (91):
Stationary device 2101 also includes a PC-direction correspondence memory 2315 storing an association between a physical concept and a direction to a destination represented by the physical concept, a direction search block 2314 connected to PC search block 2312 and PC-direction correspondence memory 2315 to search PC-direction correspondence memory 2315 for a direction to a destination represented by a physical concept output from PC search block 2312 and output a retrieved direction together with the physical concept, and a direction transmit block 2316 connected to direction search block 2314 to receive from direction search block 2314 a physical concept and a direction and externally output the physical concept and the direction.

Detailed Description Text (97):

Referring to FIG. 37, stationary device 2101 operates as described below: stationary device 2101 waits for data input from portable device 2102 or the central control system (S2601). If via portable device 2102 data is input or IC receive block 2311 receives an intermediate concept (an input from the portable device at S2601), then PC search block 2312 searches IC-PC correspondence memory 2313 for a physical concept corresponding to the intermediate concept and outputs a retrieved physical concept (S2602). Direction search block 2314 receives the physical concept from PC search block 2312, searches PC-direction correspondence memory 2315 for a direction to a destination represented by the physical concept and outputs a retrieved direction together with the physical concept (S2603). Direction transmit block 2316 receives from direction search block 2314 the direction and the physical concept and transmits them to portable device 2102 (S2604). The controls then goes back to S2601.

Detailed Description Text (103):
Furthermore, the IC-PC correspondence memory and the PC search block can be provided internal to the stationary device and the IC-PC correspondence memory can store an association between an intermediate concept and a physical concept that can be rewritten by a central control system connected externally. As such, if an intermediate concept and a physical concept have therebetween an association varying with time, the portable device can display accurate information on a direction and the user can thus efficiently reach a destination.

Detailed Description Text (107):
Referring to FIG. 38, an information service system according to a sixth embodiment includes a portable device 2202 using a received logical concept indicating an airplane's destination and departure time, such as "To Honolulu, departing at 10:23," to search for an intermediate concept indicating the airplane to board, such as "JAM, Flight no. 323," and transmit a retrieved intermediate concept together with an ID number of the portable device 2202 to a stationary device 2202 (described later) installed, e.g., at an intersection of passageways in an airport terminal.

Detailed Description Text (109):
Referring to FIG. 39, portable device 2202 includes an LC input block 2401 receiving a logical concept input by a user indicative of an airplane's destination and departure time, an LC-IC correspondence memory 2403 storing an association between a logical concept and an intermediate concept, and an IC search block 2402 connected to LC input block 2401 and LC-IC correspondence memory 2403 to receive a logical concept input by a user, search LC-IC correspondence memory 2403 for an intermediate concept corresponding to the logical concept and output a retrieved intermediate concept.

Detailed Description Text (113):
Stationary device 2201 also includes a PC-direction correspondence memory 2415 storing an association between a physical concept and a direction to a destination represented by the physical concept, a direction search block 2414 connected to PC search block 2412 and PC-direction correspondence memory 2415 to search PC-direction correspondence memory 2415 for a direction to a destination represented by a physical concept output from PC search block 2412, and output a retrieved direction together with the physical concept and an ID number, and a direction display block 2416 connected to direction search block 2414 to receive from direction search block 2414 a physical concept, a direction and an ID number and display them.

Detailed Description Text (118):
Referring to FIG. 42, stationary device 2201 operates as described below: stationary device 2201 waits for data input from portable device 2202 or the central control system (S2611). If via portable device 2202 data is input or IC receive block 2411 receives an intermediate concept and an ID number (an input from

the portable device at S2611), then PC search block 2412 searches IC-PC correspondence memory 2413 for a physical concept corresponding to the received intermediate concept and outputs a retrieved physical concept together with the ID number (S2612). Direction search block 2414 receives from PC search block 2412 the physical concept and the ID number, searches PC-direction correspondence memory 2415 a direction to a destination represented by the physical concept and outputs a retrieved direction together with the physical concept and the ID number (S2613). Direction display block 2416 receives from direction search block 2414 the direction, the physical concept and the ID number and displays them (S2614). Then the controls goes back to S2611.

Detailed Description Text (123):
Furthermore, the IC-PC correspondence memory and the PC search block can be provided internal to the stationary device and the IC-PC correspondence memory can store an association between an intermediate concept and a physical concept that can be rewritten by a central control system connected externally. As such, if an intermediate concept and a physical concept have therebetween an association varying with time, the portable device can display accurate information on a direction and the user can thus efficiently reach a destination.

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L4: Entry 1 of 1 File: DWPI Aug 19, 2004

DERWENT-ACC-NO: 2001-515860
DERWENT-WEEK: 200455

TITLE: Information transmission method uses radio communication satellite broadcasting for providing e.g. traffic regulation information, parking status information or sight-seeing information to mobile bodies such as road or railway vehicles

INVENTOR: FUSHIKI, T; HORITA, M ; KAWAMATA, Y ; YAMAASHI, K ; YAMANE, K ; YOKOTA, T

PATENT-ASSIGNEE: HITACHI LTD (HITA)

PRIORITY-DATA: 1999JP-0244785 (August 31, 1999)

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20040162019 A1	August 19, 2004		000	H04H001/00
EP 1081668 A2	March 7, 2001	E	083	G08G001/0968
CA 2316661 A1	February 28, 2001	E	000	H04H001/00
CN 1289994 A	April 4, 2001		000	G08G001/09
JP 2001067594 A	March 16, 2001		050	G08G001/09
KR 2001021468 A	March 15, 2001		000	G08G001/0968
US 20020027511 A1	March 7, 2002		000	G08G001/123
US 20020027512 A1	March 7, 2002		000	G08G001/123
US 6657558 B2	December 2, 2003		000	G08G001/123
TW 554302 A	September 21, 2003		000	G08G001/09
US 6759970 B1	July 6, 2004		000	G08G001/09

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US20040162019A1	August 28, 2000	2000US-0649682	Cont of
US20040162019A1	January 16, 2004	2004US-0759929	
EP 1081668A2	August 24, 2000	2000EP-0118435	

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CA 2316661A1	August 24, 2000	2000CA-2316661	
CN 1289994A	August 31, 2000	2000CN-0130674	
JP2001067594A	August 31, 1999	1999JP-0244785	
KR2001021468A	August 30, 2000	2000KR-0050788	
US20020027511A1	August 28, 2000	2000US-0649682	Div ex
US20020027511A1	August 13, 2001	2001US-0929318	
US20020027512A1	August 28, 2000	2000US-0649682	Div ex
US20020027512A1	August 13, 2001	2001US-0929561	
US 6657558B2	August 28, 2000	2000US-0649682	Div ex
US 6657558B2	August 13, 2001	2001US-0929561	
TW 554302A	August 30, 2000	2000TW-0117666	
US 6759970B1	August 28, 2000	2000US-0649682	

INT-CL (IPC): G01 C 21/30; G08 G 1/09; G08 G 1/0968; G08 G 1/123; H04 B 7/195; H04 H 1/00

ABSTRACTED-PUB-NO: EP 1081668A
BASIC-ABSTRACT:

NOVELTY - A car navigation system (150) retrieves traffic regulation information and transmission destination area (180) specific information from information signal (105) sent from digital radio broadcasting satellite (110), derives location of vehicle (130) from location signal (115) sent from GPS satellite (120), identifies vehicle area (135), and derives traveling route area (160) from internally stored traveling route (165).

DETAILED DESCRIPTION - The relationship between the vehicle area, the traveling route area, and the destination area are compared, for selecting and displaying the required information about the traveling route.

INDEPENDENT CLAIMS are also included for the following:

(a) an area specifying unit for segmenting information transmission destinations into non-overlapping areas;

(b) an information selection and output method;

(c) a broadcast transmitting hardware system;

(d) a broadcast receiving hardware system;

(e) a mobile body location information transmission system;

(f) an event information transmission system;

(g) a traffic information editing equipment;

(h) an information providing system;

(i) an information receiving hardware system; and

(j) an information providing scheme.

USE - For providing real-time information such as traffic regulation information, parking status information or sight-seeing information concerning nearest train station, from external equipment to mobile bodies such as road or railway vehicles.

ADVANTAGE - Enables information transmission and selection according to moving status of each mobile body and/or its further movement schedule, so that only information corresponding to traveling route of mobile body will be efficiently displayed at information terminal of car or train navigation system.

DESCRIPTION OF DRAWING(S) - The drawing shows an explanatory diagram of a broadcasting system.

Information signal 105

Digital radio broadcast satellite 110

Location signal 115

GPS satellite 120

Vehicle 130

Vehicle area 135

Car navigation system 150

Traveling route area 160

Stored traveling route 165

Transmission destination area 180

ABSTRACTED-PUB-NO: US20020027511A
EQUIVALENT-ABSTRACTS:

NOVELTY - A car navigation system (150) retrieves traffic regulation information and transmission destination area (180) specific information from information signal (105) sent from digital radio broadcasting satellite (110), derives location of vehicle (130) from location signal (115) sent from GPS satellite (120), identifies vehicle area (135), and derives traveling route area (160) from internally stored traveling route (165).

DETAILED DESCRIPTION - The relationship between the vehicle area, the traveling route area, and the destination area are compared, for selecting and displaying the required information about the traveling route.

INDEPENDENT CLAIMS are also included for the following:

(a) an area specifying unit for segmenting information transmission destinations into non-overlapping areas;

(b) an information selection and output method;

(c) a broadcast transmitting hardware system;

(d) a broadcast receiving hardware system;

(e) a mobile body location information transmission system;

(f) an event information transmission system;

(g) a traffic information editing equipment;

(h) an information providing system;

(i) an information receiving hardware system; and

(j) an information providing scheme.

USE - For providing real-time information such as traffic regulation information, parking status information or sight-seeing information concerning nearest train station, from external equipment to mobile bodies such as road or railway vehicles.

ADVANTAGE - Enables information transmission and selection according to moving status of each mobile body and/or its further movement schedule, so that only information corresponding to traveling route of mobile body will be efficiently displayed at information terminal of car or train navigation system.

DESCRIPTION OF DRAWING(S) - The drawing shows an explanatory diagram of a broadcasting system.

Information signal 105

Digital radio broadcast satellite 110

Location signal 115

GPS satellite 120

Vehicle 130

Vehicle area 135

Car navigation system 150

Traveling route area 160

Stored traveling route 165

Transmission destination area 180

US20020027512A

NOVELTY - A car navigation system (150) retrieves traffic regulation information and transmission destination area (180) specific information from information signal (105) sent from digital radio broadcasting satellite (110), derives location of vehicle (130) from location signal (115) sent from GPS satellite (120), identifies vehicle area (135), and derives traveling route area (160) from internally stored traveling route (165).

DETAILED DESCRIPTION - The relationship between the vehicle area, the traveling route area, and the destination area are compared, for selecting and displaying the required information about the traveling route.

INDEPENDENT CLAIMS are also included for the following:

(a) an area specifying unit for segmenting information transmission destinations into non-overlapping areas;

(b) an information selection and output method;

(c) a broadcast transmitting hardware system;

(d) a broadcast receiving hardware system;

(e) a mobile body location information transmission system;

(f) an event information transmission system;

(g) a traffic information editing equipment;

(h) an information providing system;

(i) an information receiving hardware system; and

(j) an information providing scheme.

USE - For providing real-time information such as traffic regulation information, parking status information or sight-seeing information concerning nearest train station, from external equipment to mobile bodies such as road or railway vehicles.

ADVANTAGE - Enables information transmission and selection according to moving status of each mobile body and/or its further movement schedule, so that only information corresponding to traveling route of mobile body will be efficiently displayed at information terminal of car or train navigation system.

DESCRIPTION OF DRAWING(S) - The drawing shows an explanatory diagram of a broadcasting system.

Information signal 105

Digital radio broadcast satellite 110

Location signal 115

GPS satellite 120

Vehicle 130

Vehicle area 135

Car navigation system 150

Traveling route area 160

Stored traveling route 165

Transmission destination area 180

CHOSEN-DRAWING: Dwg.1/50

DERWENT-CLASS: T07 W02 W06 X22 X23
EPI-CODES: T07-G01; W02-C03B1; W02-C03C3F; W06-A03A; X22-E06; X22-E11; X23-C;

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